

**ABSTRACT**

An expandable tire building drum, having alternating fixed (226, 326, 426) and expanding (228, 328, 428) segments (e.g., 24 of each) in a center section (220, 320, 420) of the drum. The expanding segments are axially-extending and circumferentially spaced from one another, and are contoured (have recesses, or grooves) to accommodate tire components such as sidewall inserts. Two different mechanisms for expanding the center section are described. A first mechanism includes two wedge elements (358) which are axially moveable away from one another to expand the center section. Ramp elements (348) associated with the expanding segments (328) may thus be moved radially outward. Rubber bands (358) provide a restoring force for collapsing the center section. A second mechanism includes two guide rings (458) which are axially moveable towards one another for expanding the center section, and away from one another to collapse the center section. Overlapping links (462, 464) are provided between the guide rings and a support element (448) supporting the expanding segments (428).

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